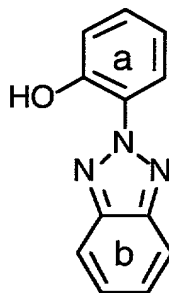


I claim:

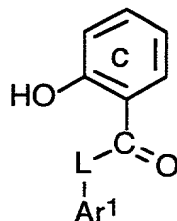
1. An optical filter which comprises a transparent support and a filter layer containing a dye and a binder polymer, wherein the dye is in an aggregated form exhibiting an absorption maximum in the wavelength region of 750 to 1,100 nm, and wherein the support, the filter layer or an optional layer contains a ultraviolet absorbing agent represented by the formula (I), (II), (III), (IV), (V), (VI), (VII) or (VIII):

(I)



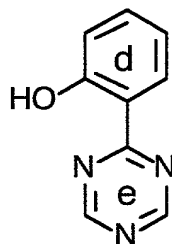
in which the benzene rings a and b may have a substituent group;

(II)



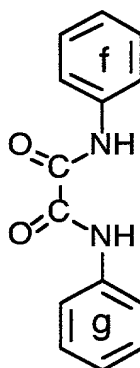
in which Ar¹ is an aryl group or an aromatic heterocyclic group, -L- is a single bond or -O-, and the benzene ring c may have a substituent group;

(III)



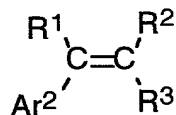
in which the benzene ring d and the triazine ring e may have a substituent group, and the benzene ring d may be
5 condensed with another aromatic ring or a heterocyclic ring;

(IV)



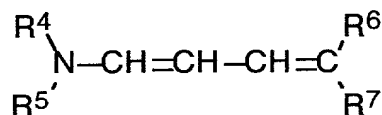
10 in which the benzene rings f and g may have a substituent group;

(V)



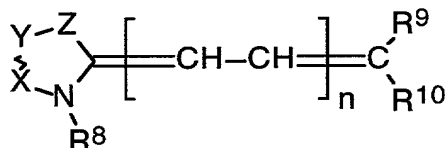
15 in which Ar² is an aryl group or an aromatic heterocyclic group; R¹ is hydrogen or an alkyl group; and each of R² and R³ independently is cyano, -COR¹³, -COOR¹⁴, -CONR¹⁵R¹⁶, -SO₂R¹⁷ or -SO₂NR¹⁸R¹⁹, wherein each of R¹³, R¹⁴, R¹⁵, R¹⁶, R¹⁷, R¹⁸ and R¹⁹ independently is hydrogen, an alkyl group, a substituted alkyl group or an aryl group, or R² and R³ are combined to form a five-membered or six-membered ring;

(VI)



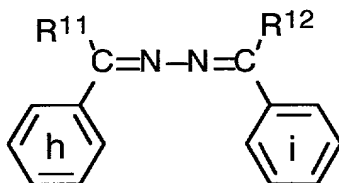
in which each of R^4 and R^5 independently is hydrogen, an alkyl group or an aryl group, or R^4 and R^5 are combined to form a five-membered or six-membered ring; and each of R^6 and R^7 independently is cyano, $-\text{COR}^{20}$, $-\text{COOR}^{21}$, $-\text{CONR}^{22}\text{R}^{23}$, $-\text{SO}_2\text{R}^{24}$ or $-\text{SO}_2\text{NR}^{25}\text{R}^{26}$, wherein each of R^{20} , R^{21} , R^{22} , R^{23} , R^{24} , R^{25} and R^{26} independently is hydrogen, an alkyl group, a substituted alkyl group or an aryl group, or R^6 and R^7 are combined to form a five-membered or six-membered ring;

(VII)



in which R⁸ is an alkyl group, a substituted alkyl group or an aryl group; each of R⁹ and R¹⁰ independently is cyano, -COR²⁷, -COOR²⁸, -CONR²⁹R³⁰, -SO₂R³¹ or -SO₂NR³²R³³, wherein each of R²⁷, R²⁸, R²⁹, R³⁰, R³¹, R³² and R³³ independently is hydrogen, an alkyl group, a substituted alkyl group or an aryl group, or R⁹ and R¹⁰ are combined to form a five-membered or six-membered ring; -X-Y- is -CR³⁴R³⁵-CR³⁶R³⁷- or -CR³⁸=CR³⁹-, wherein each of R³⁴, R³⁵, R³⁶, R³⁷, R³⁸ and R³⁹ independently is hydrogen, an alkyl group or an aryl group, or R³⁸ and R³⁹ are combined to form a benzene or naphthalene ring; -Z- is -O-, -S-, -NR⁴⁰-, -CR⁴¹R⁴²- or -CH=CH-, wherein R⁴⁰ is an alkyl group, a substituted alkyl group or an aryl group, and each of R⁴¹ and R⁴² independently is hydrogen or an alkyl group; n is 0 or 1;

(VIII)



in which each of R¹¹ and R¹² independently is hydrogen, an alkyl group or an aryl group, or R¹¹ and R¹² are combined to form a five-membered or six-membered ring; the benzene rings h and i may have a substituent group; and the benzene rings h and i may be condensed with another aromatic ring or a heterocyclic ring.

2. The optical filter as defined in claim 1, wherein the ultraviolet absorbing agent is an o-substituted phenol represented by the formula (I), (II) or (III).

3. The optical filter as defined in claim 1, wherein the longest wavelength at which the ultraviolet absorbing agent has an absorption maximum is within the wavelength region of 300 to 390 nm.

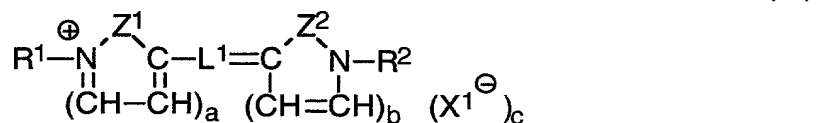
4. The optical filter as defined in claim 1, wherein the ultraviolet absorbing agent has an absorption, at a wavelength of 50 nm longer than the longest wavelength at which the absorbing agent has an absorption maximum, of less than 10% of the absorption at the absorption maximum.

5. The optical filter as defined in claim 1, wherein the dye is a methine dye.

6. The optical filter as defined in claim 1, wherein the filter layer has the absorption maximum in each wavelength region of 750 to 850 nm, 851 to 950 nm, and 951 to 1,100 nm.

7. The optical filter as defined in claim 6, where-
in the filter layer contains a dye exhibiting an absorption
maximum in the wavelength region of 750 to 850 nm, a dye
exhibiting an absorption maximum in the wavelength region
5 of 851 to 950 nm, and a dye exhibiting an absorption maxi-
mum in the wavelength region of 951 to 1,100 nm.

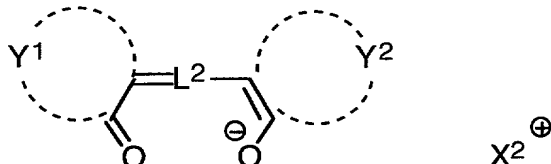
8. The optical filter as defined in claim 7, where-
in at least one of the dyes exhibiting an absorption maxi-
10 mum in the wavelength regions of 750 to 850 nm, 851 to 950
nm and 951 to 1,100 nm is a cyanine dye represented by the
formula (1):



15 in which each of Z^1 and Z^2 independently is a non-metal at-
omic group forming a five-membered or six-membered nitro-
gen-containing heterocyclic ring which may be condensed;
each of R^1 and R^2 independently is an aliphatic group or an
aromatic group; L^1 is a methine chain consisting of an add
20 number of methines; each of a , b and c independently is 0
or 1; and X^1 is an anion.

9. The optical filter as defined in claim 7, wherein the dye exhibiting an absorption maximum in the wavelength region of 750 to 850 nm is an oxonol dye represented by the formula (2):

5 (2)

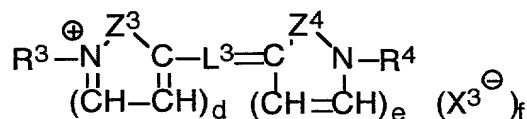


10 in which each of Y¹ and Y² independently is a non-metal atomic group forming an aliphatic ring or a heterocyclic ring; L² is a methine chain consisting of an add number of methines; and X² is a proton or a cation.

15 10. The optical filter as defined in claim 7, wherein the transmittance at the absorption maximum in each wavelength region of 750 to 850 nm, 851 to 950 nm and 951 to 1,100 nm is in the range of 0.01 to 30%.

20 11. The optical filter as defined in claim 1, wherein the optical filter further contains a cyanine dye represented by the following formula (3) in an aggregated form exhibiting an absorption maximum in the wavelength region of 560 to 620 nm:

(3)



25 in which each of Z³ and Z⁴ independently is a non-metal atomic group forming a five-membered or six-membered nitrogen-containing heterocyclic ring which may be condensed; each of R³ and R⁴ independently is an aliphatic group or an aromatic group; L³ is a methine chain consisting of an add number of methines; each of d, e and f independently is 0 or 1; and X³ is an anion.

30

12. A plasma display panel having a display surface covered with an optical filter, wherein the optical filter comprises a transparent support and a filter layer, said
5 optical layer having an absorption maximum in each wavelength region of 300 to 390 nm, 560 to 620 nm, 750 to 850 nm, 851 to 950 nm and 951 to 1,100 nm.

13. The plasma display panel as defined in claim 12,
10 wherein the optical filter is directly attached to the display surface.